FIG. 1

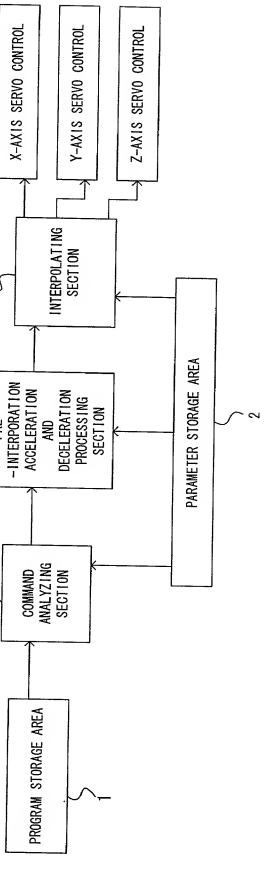
PROGRAM STORAGE AREA
1
COMMAND ANALYZING SECTION
3
PRE -INTERPORATION ACCELERATION AND DECELERATION PROCESSING SECTION
4
INTERPOLATING SECTION
5
PARAMETER STORAGE AREA
2
X-AXIS SERVO CONTROL
Y-AXIS SERVO CONTROL
Z-AXIS SERVO CONTROL

FIG. 2

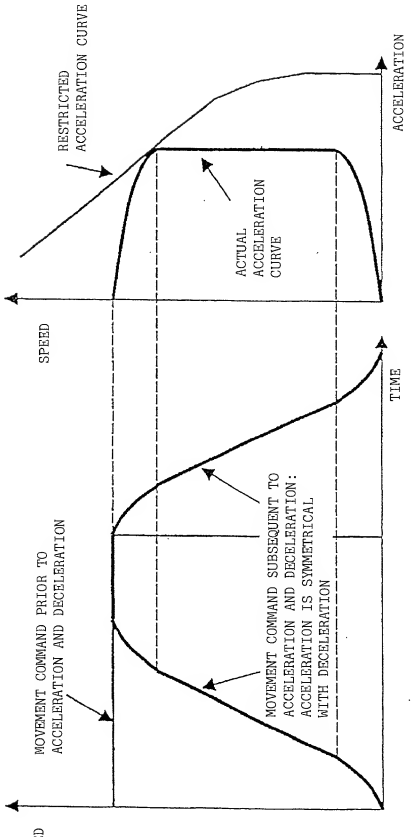
SPEED
MOVEMENT COMMAND PRIOR TO ACCELERATION AND DECELERATION
MOVEMENT COMMAND SUBSEQUENT TO ACCELERATION AND DECELERATION: ACCELERATION IS SYMMETRICAL WITH DECELERATION
TIME
SPEED
RESTRICTED ACCELERATION CURVE
ACTUAL ACCELERATION CURVE
ACCELERATION

FIG. 3

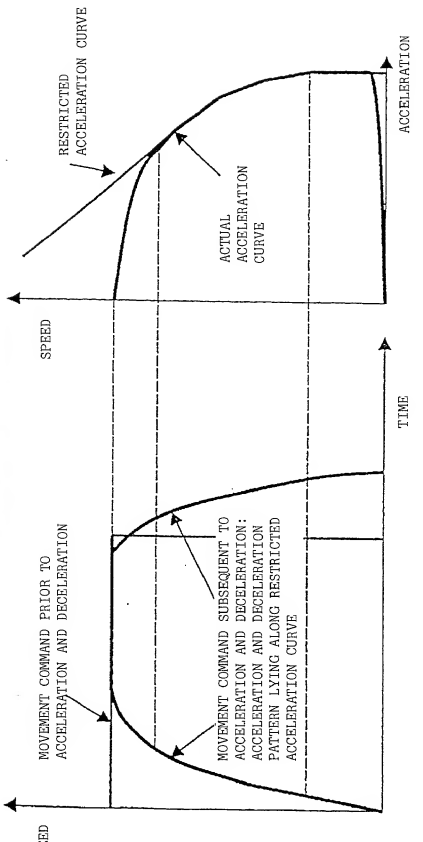
SPEED
MOVEMENT COMMAND PRIOR TO ACCELERATION AND DECELERATION
MOVEMENT COMMAND SUBSEQUENT TO ACCELERATION AND DECELERATION: ACCELERATION AND DECELERATION PATTERN LYING ALONG RESTRICTED ACCELERATION CURVE
TIME
SPEED
RESTRICTED ACCELERATION CURVE
ACTUAL ACCELERATION CURVE
ACCELERATION

FIG. 4

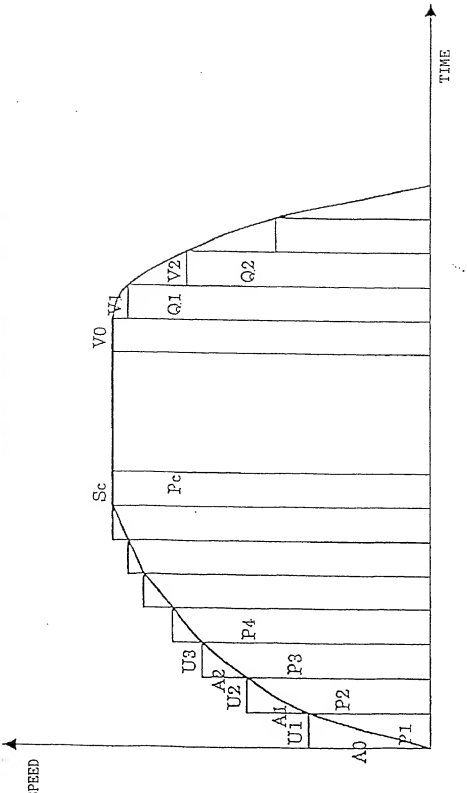

FIG. 5

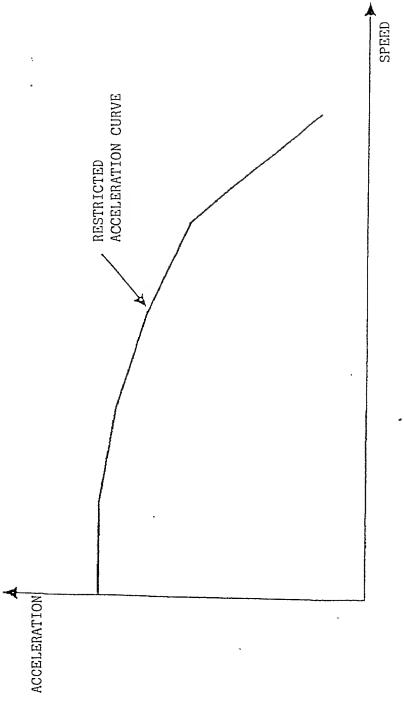

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FIG. 6

SPEED	ACCELERATION			
	IN ACCELERATION		IN DECELERATION	
	MOVEMENT IN POSITIVE DIRECTION	MOVEMENT IN NEGATIVE DIRECTION	MOVEMENT IN POSITIVE DIRECTION	MOVEMENT IN NEGATIVE DIRECTION
0m/min	8m/sec^2	9m/sec^2	12m/sec^2	11m/sec^2
10m/min	7m/sec^2	9m/sec^2	12m/sec^2	10m/sec^2
20m/min	6m/sec^2	8m/sec^2	11m/sec^2	9m/sec^2
30m/min	5m/sec^2	7m/sec^2	9m/sec^2	8m/sec^2
40m/min	4m/sec^2	6m/sec^2	8m/sec^2	6m/sec^2
50m/min	1m/sec^2	3m/sec^2	4m/sec^2	2m/sec^2

FIG. 7

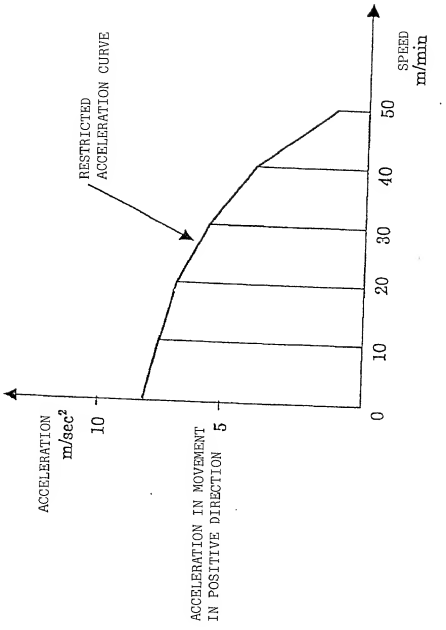

RESTRICTED
ACCELERATION CURVE
ACCELERATION
m/sec²
10
ACCELERATION IN MOVEMENT
IN POSITIVE DIRECTION
5
0
10
20
30
40
50
SPEED
m/min

FIG. 8

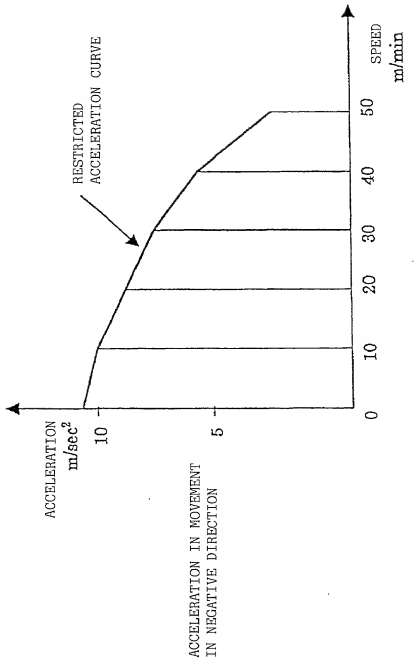
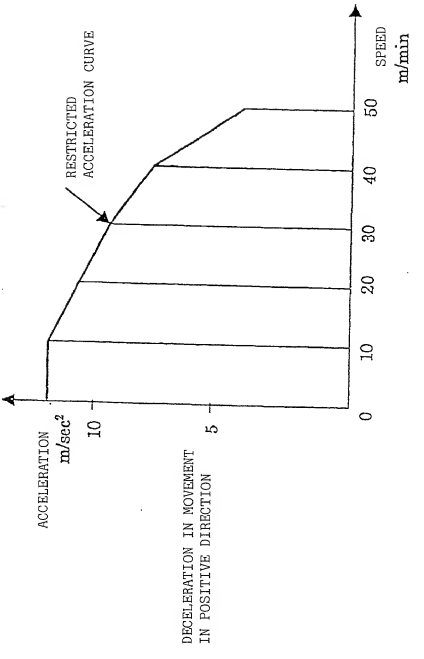

RESTRICTED
ACCELERATION CURVE
ACCELERATION
m/sec²
10
5
0
10
20
30
40
50
SPEED
m/min
ACCELERATION IN MOVEMENT
IN NEGATIVE DIRECTION

FIG. 9


RESTRICTED
ACCELERATION CURVE
ACCELERATION
m/sec²
10
5
DECELERATION IN MOVEMENT
IN POSITIVE DIRECTION
0
10
20
30
40
50
SPEED
m/min

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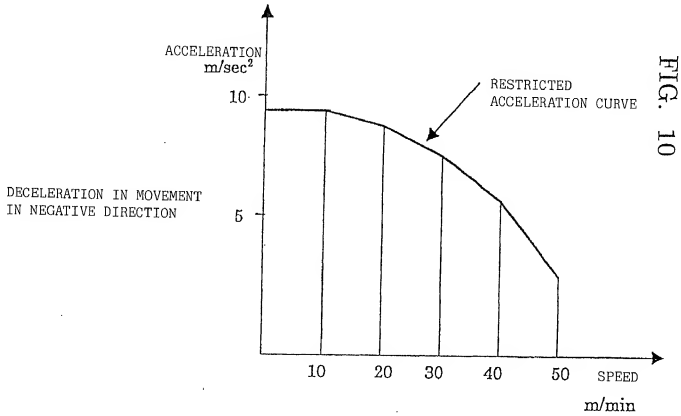


FIG. 10

FIG. 11A

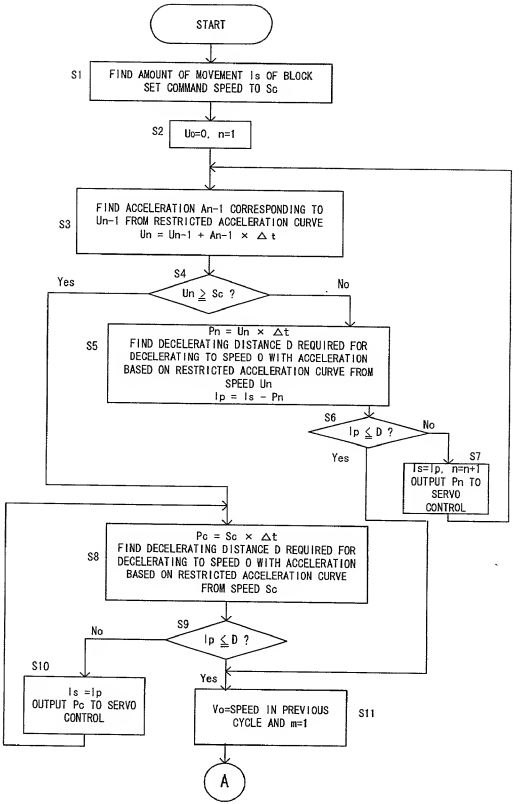
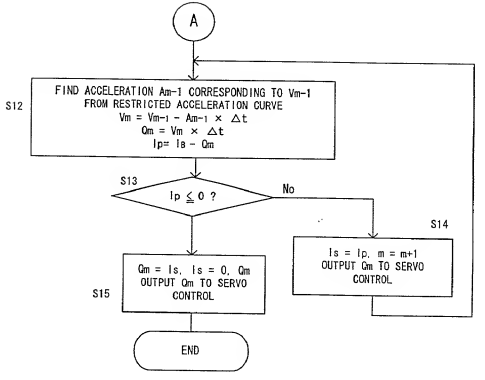

START
S1
FIND AMOUNT OF MOVEMENT ls OF BLOCK
SET COMMAND SPEED TO Sc
S2
Uo=0, n=1
S3
FIND ACCELERATION An-1 CORRESPONDING TO
Un-1 FROM RESTRICTED ACCELERATION CURVE
Un = Un-1 + An-1 × Δt
S4
Un ≧ Sc ?
Yes
No
S5
Pn = Un × Δt
FIND DECELERATING DISTANCE D REQUIRED FOR
DECELERATING TO SPEED 0 WITH ACCELERATION
BASED ON RESTRICTED ACCELERATION CURVE FROM
SPEED Un
lp = ls - Pn
S6
lp ≦ D ?
No
Yes
S7
ls=lp, n=n+1
OUTPUT Pn TO
SERVO
CONTROL
S8
Pc = Sc × Δt
FIND DECELERATING DISTANCE D REQUIRED FOR
DECELERATING TO SPEED 0 WITH ACCELERATION
BASED ON RESTRICTED ACCELERATION CURVE
FROM SPEED Sc
S9
lp ≦ D ?
No
Yes
S10
ls =lp
OUTPUT Pc TO SERVO
CONTROL
Vo=SPEED IN PREVIOUS
CYCLE AND m=1
S11
A

FIG.11B


A
S12
FIND ACCELERATION Am-1 CORRESPONDING TO Vm-1
FROM RESTRICTED ACCELERATION CURVE
Vm = Vm-1 - Am-1 × △t
Qm = Vm × △t
Ip= Is - Qm
S13
Ip ≦ 0 ?
No
S14
Is = Ip, m = m+1
OUTPUT Qm TO SERVO
CONTROL
S15
Qm = Is, Is = 0, Qm
OUTPUT Qm TO SERVO
CONTROL
END